

What is claimed is:

1. An optical unit, comprising:

a light source;

a color separation means for separating a light emitted  
5 from said light source into plural pieces of color lights;

reflection-type image display elements, upon each being  
incident the corresponding color of the lights from said color  
separation means, and for forming an optical image for each of  
said color lights, depending upon an image signal, with using  
10 polarization characteristics which said reflection-type image  
display elements have; and

a color synthesizing means for synthesizing said optical  
images of said respective color lights, to be projected through  
a projection lens, enlargedly, and further comprising:

15 a reflection-type polarization plate functioning as a  
polarization plate due to diffraction, being provided on an optical  
path extending from said color separation means to said  
reflection-type image display elements, to be a polarizer and an  
analyzer to said reflection-type image display elements; and

20 an optical chassis for holding said reflection-type  
polarization plate and said reflection-type image display elements  
thereon, and having a translucent window on an incident light side  
of said reflection-type polarization plate while an exiting light  
side of said reflection-type polarization plate is sealed with  
25 an incident surface of said color synthesizing means, wherein

a hermetically sealed space is defined by said optical  
chassis, said reflection-type image display elements and the  
incident surface of said color synthesizing means, and within said  
hermetically sealed space is disposed a translucent liquid having  
30 refraction index from 1.2 to 1.9.

2. An optical unit, comprising:

a light source;

a color separation means for separating a light emitted from said light source into plural pieces of color lights;

5 reflection-type image display elements, upon each being incident the corresponding color of the lights from said color separation means, and for forming an optical image for each of said color lights, depending upon an image signal, with using polarization characteristics which said reflection-type image  
10 display elements have; and

a color synthesizing means for synthesizing said optical images of said respective color lights, to be projected through a projection lens, enlargedly, and further comprising:

a reflection-type polarization plate functioning as a  
15 polarization plate due to diffraction, being provided on an optical path extending from said color separation means to said reflection-type image display elements, to be a polarizer and an analyzer to said reflection-type image display elements; and

an optical chassis for holding said reflection-type  
20 polarization plate thereon, and having translucent windows on an incident light side and an incident/exiting light side of said reflection-type polarization plate while an exiting light side of said reflection-type polarization plate is sealed with an incident surface of said color synthesizing means, wherein

25 a hermetically sealed space is defined by said optical chassis, said reflection-type image display elements and the incident surface of said color synthesizing means, and within said hermetically sealed space is disposed a translucent liquid having refraction index from 1.2 to 1.9.

30 3. The optical unit, as described in the claim 2, wherein an auxiliary polarizer is disposed on said incident light side

translucent window of said optical chassis, while said reflection-type image display elements are disposed on said incident/exiting light side translucent window of said optical chassis.

5           4. The optical unit, as described in the claim 1, wherein an auxiliary polarizer is disposed on said optical chassis in place of said incident light side translucent window.

          5. The optical unit, as described in the claim 1, wherein an auxiliary polarizer is disposed on said optical chassis in place  
10 of said incident light side translucent window.

          6. A projection-type image display apparatus, comprising:

          an optical unit as described in the claim 1; and

          a driver circuit for driving said reflection-type image display elements.

15           7. A projection-type image display apparatus, comprising:

          an optical unit as described in the claim 2; and

          a driver circuit for driving said reflection-type image display elements.

          8. A projection-type image display apparatus, comprising:

20           an optical unit as described in the claim 3; and

          a driver circuit for driving said reflection-type image display elements.